

WHAT IS CLAIMED IS:

1 1. A method of providing high-speed information service within
2 a communication system comprising:
3 establishing a distributed network of distribution points;
4 providing each packet destined for a subscriber unit with an address,
5 the address indicating a destination within the communication system;
6 receiving each packet in the network of distribution points;
7 in each distribution point along the path of distribution points to the
8 destination, determining to which distribution point each packet will be forwarded
9 based on the address;
10 receiving each packet in an access point servicing the destination; and
11 forwarding each packet to the destination subscriber unit.

1 2. A method of providing high-speed information service as in
2 claim 1 wherein receiving each packet in an access point comprises receiving each
3 packet over a wireless link.

1 3. A method of providing high-speed information service as in
2 claim 1 further comprising transmitting each packet within the network of
3 distribution points over wireless links between distribution points.

1 4. A method of providing high-speed information service as in
2 claim 1 wherein packets are forwarded to the destination subscriber unit over a
3 wireless link between the access point and the subscriber unit.

1 5. A method of providing high-speed information service as in
2 claim 4 further comprising receiving each packet in a terminal network controller and
3 formatting each received packet based on the type of customer device serviced by the
4 terminal network controller.

1 6. A method of providing high-speed information service as in
2 claim 1 wherein the last distribution point in the path of distribution points comprises
3 a host digital terminal transmitting packets over optical fiber.

1 7. A method of providing high-speed information service as in
2 claim 6 wherein the access point comprises an optical network unit receiving packets
3 over optical fiber and distributing packets to each subscriber unit over a digital
4 subscriber loop.

1 8. A method of providing high-speed information service as in
2 claim 1 wherein the high speed information service comprises a VDSL service.

1 9. A method of providing high-speed information service as in
2 claim 1 wherein the high speed information service is a video information service.

1 10. A method of distributing high-speed information packets to at
2 least one subscriber unit, each information packet associated with an information
3 channel, the method comprising:
4 routing each information packet through a distributed network of
5 routing elements, each routing element in wireless communication with at least one
6 other routing element in the network of routing elements;
7 receiving each information packet in a distribution center in
8 communication with the distributed network of routing elements; and
9 forwarding each information packet to each subscriber unit in
10 communication with the distribution center and requesting the information channel
11 of which the information packet is associated.

1 11. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 10 wherein the information packets comprise
3 video information.

1 12. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 10 wherein routing each information packet
3 through a distributed network of routing elements comprises:

4 routing each information packet through a distributed network of
5 distribution points; and

6 transmitting each information packet to an access point operative to
7 communicate with a plurality of subscriber units.

1 13. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 12 wherein at least one distribution point is
3 functioning as the distribution center.

1 14. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 12 wherein at least one access point is
3 functioning as the distribution center.

1 15. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 10 further comprising:

3 receiving a request from a subscriber unit to access an information
4 channel;

5 requesting transmission of the requested information channel if no
6 other subscriber unit is receiving the requested information channel; and

7 noting that the requesting subscriber unit is receiving the requested
8 information channel.

1 16. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 15 wherein receiving a request from a subscriber
3 unit comprises determining that the requesting subscriber unit is within the coverage
4 area of a distribution center.

1 17. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 15 wherein receiving a request from a subscriber
3 unit comprises receiving a message from a subscriber unit.

1 18. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 15 further comprising transmitting a dummy
3 address as the destination for the requested transmission of the requested information
4 channel.

1 19. A method of distributing high-speed information packets to at
2 least one subscriber unit as in claim 15 further comprising:
3 determining that a subscriber unit is no longer accessing the
4 information channel;
5 canceling transmission of the information channel if no other
6 subscriber unit is receiving the information channel; and
7 noting that the subscriber unit is no longer receiving the information
8 channel.

1 20. A system for providing high-speed packetized information
2 comprising a distributed routing network, the distributed routing network comprising
3 a plurality of distribution points, each distribution point in the plurality of
4 distribution points in radio contact with at least one other distribution point in the
5 plurality of distribution points, at least one of the plurality of distribution points
6 comprising at least one host digital terminal (HDT) for converting high-speed
7 information packets to an optical format and forwarding the information packets to
8 subscriber units.

1 21. A system for providing high-speed packetized information as
2 in claim 20 wherein at least one subscriber unit is operative to receive information
3 packets in an optical format.

1 22. A system for providing high-speed packetized information as
2 in claim 20 further comprising at least one access point in communication with the
3 at least one HDT, the access point operative to convert information packets in an
4 optical format into a format compatible with copper cabling.

1 23. A system for providing high-speed packetized information as
2 in claim 22 wherein at least one subscriber unit is in communication with the at least
3 one access point through a network interface device.

1 24. A system for providing high-speed packetized information as
2 in claim 22 wherein at least one access point functions as a video distribution center.

1 25. A system for providing high-speed packetized information as
2 in claim 20 wherein high-speed packetized information is provided through a VDSL
3 service.

1 26. A system for providing high-speed packetized information as
2 in claim 20 wherein high-speed information includes video information.

1 27. A system for providing high-speed packetized information as
2 in claim 20 wherein at least one distribution point functions as a video distribution
3 center.

1 28. A system for providing packetized video information to a
2 plurality of subscriber units comprising a distributed routing network, the distributed
3 routing network comprising a plurality of distribution points, each distribution point
4 in the plurality of distribution points in radio contact with at least one other
5 distribution point in the plurality of distribution points, at least one of the plurality
6 of distribution points functioning as a video distribution center.

1 29. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 28 wherein at least one of the distribution
3 points is operative to receive requests for video content from at least one subscriber
4 unit and forward those requests to at least one video supplier.

1 30. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 28 wherein at least one video distribution

3 center forwards video information packets comprising a video channel to each
4 subscriber unit served by the video distribution center requesting the video channel.

1 31. A system for providing packetized video information to a
2 plurality of subscriber units comprising:

3 a distributed routing network, the distributed routing network
4 comprising a plurality of distribution points, each distribution point in the plurality
5 of distribution points in radio contact with at least one other distribution point in the
6 plurality of distribution points; and

7 at least one access point in communication with the distributed routing
8 network functioning as a video distribution center.

1 32. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 31 wherein the at least one access point is
3 operative to receive requests for video content from at least one subscriber unit and
4 forward those requests to at least one video supplier.

1 33. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 31 wherein the at least one access point
3 replicates video information packets comprising a video channel for each of a
4 plurality of subscriber units requesting the video channel.

1 34. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 31 wherein at least one access point is
3 operative to

4 receive a request to access a video channel from a subscriber unit;
5 determine if the requested video channel is currently being accessed
6 by another subscriber unit served by the access point; and

7 if the requested video channel is not currently being accessed by
8 another subscriber unit served by the access point, forwarding the request to a video
9 supplier.

1 35. A system for providing packetized video information to a
2 plurality of subscriber units as in claim 34 wherein each of the at least one access
3 point is further operative to
4 receive a video information packet from at least one video supplier;
5 determine if the received video packet corresponds to a video channel
6 requested by more than one subscriber unit; and
7 forward the video packet to each subscriber unit requesting the video
8 channel.

1 36. A system for distributing high-speed information packets to at
2 least one subscriber unit, each information packet associated with an information
3 channel, the system comprising:
4 a distributed network of routing elements for routing each information
5 packet, each routing element in wireless communication with at least one other
6 routing element in the network of routing elements; and
7 at least one distribution center in communication with the distributed
8 network of routing elements and with at least one subscriber unit, each distribution
9 center forwarding each information packet to each subscriber unit requesting the
10 information channel associated with each information packet.

1 37. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 36 wherein the information packets comprise
3 video information.

1 38. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 36 wherein the distributed network of routing
3 elements comprises:
4 a distributed network of distribution points operative to route each
5 information packet; and
6 at least one access point operative to communicate with a plurality of
7 subscriber units.

1 39. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 38 wherein at least one distribution point
3 functions as the distribution center.

1 40. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 38 wherein at least one access point functions
3 as the distribution center.

1 41. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 36 wherein the at least one distribution center
3 receives a request from a subscriber unit to access an information channel and
4 requests transmission of the requested information channel if no other subscriber unit
5 is receiving the requested information channel.

1 42. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 41 wherein at least one distribution center
3 receives a request from a subscriber unit based on a determination that the requesting
4 subscriber unit is within the coverage area of the at least one distribution center.

1 43. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 41 wherein at least one distribution center
3 receives a request from a subscriber unit based on a message from a subscriber unit.

1 44. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 41 wherein at least one distribution center
3 further transmits a dummy address as the destination for the requested transmission
4 of the requested information channel.

1 45. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 41 wherein at least one distribution center notes
3 that the requesting subscriber unit is receiving the requested information channel.

- 1 46. A system for distributing high-speed information packets to at
2 least one subscriber unit as in claim 41 wherein at least one distribution center
3 determines that a subscriber unit is no longer accessing the information channel and
4 cancels transmission of the information channel if no other subscriber unit is
5 receiving the information channel.